Monty Python Reloaded

YOU WON'T BELIEVE WHAT THIS GROUP DID🤯

Monty Python Reloaded

WON'T

BE WHAT

THIS GRO D 🤯

Clickbait detected

Monty Python Reloaded

Clickbait Classifier

David Kupert, Felix Teutsch, Jonas Beer

Agenda

1. Topic
2. The motivation
3. State of the Art
4. Methodology
5. Experimental Results
6. Explainability
7. Contribution

David

Topic - Clickbait

Clickbait refers to headlines that entice readers to click on a link, often leading to content of bad quality or relevance

Jonas

Topic - Clickbait detection

Clickbait detection is important to ensure:

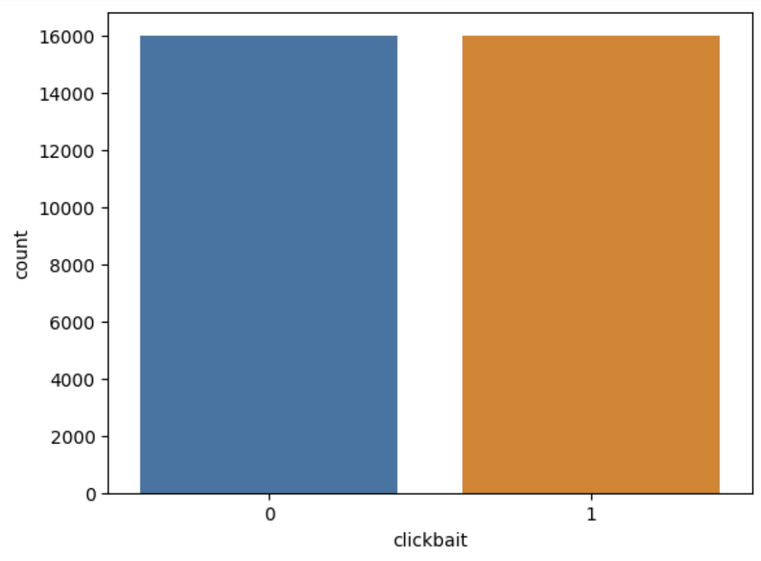
- information integrity
- user experience
- digital literacy

Jonas

Topic - Dataset

Our dataset consists of:

- clickbait headlines (Buzzfeed, ViralNova, ...)
- non-clickbait headlines (WikiNews, NY Times, The Guardian
- 0 or 1 depending on the category



Jonas

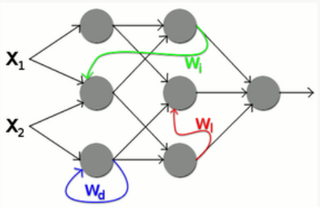
The Goal / Motivation

- Understanding the Methods behind Clickbait detection
- Personal issues with clickbait
- Improve Classifier

Jonas

State of the Art

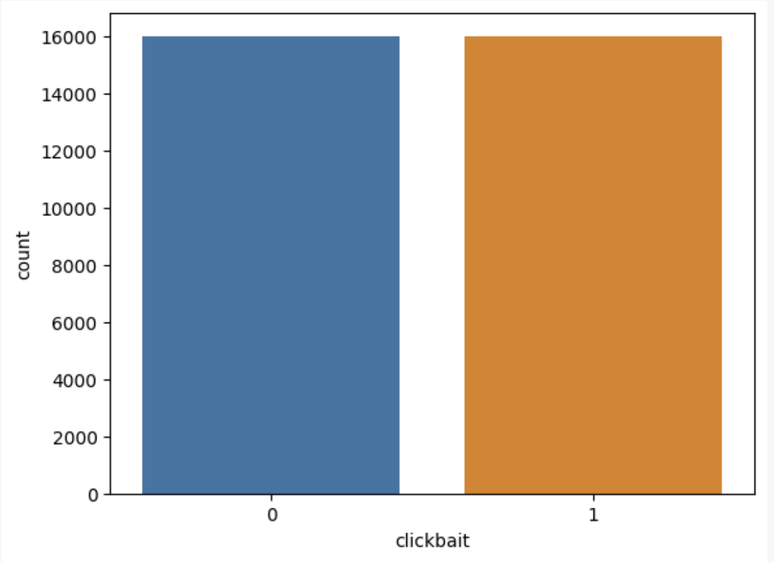
- Clickbait Detection via Large Language Models
  - “Experimental results show that LLMs cannot achieve the best results compared to the state-of-the-art deep and fine-tuning PLMs methods”, used ChatGPT 3.5
- Clickbait Detection with Style-aware Title Modeling and Co-attention
  - Used style-aware title modelling and co-attention to improve clickbait detection
- We used Neural Networks to Detect Clickbaits: You won’t believe what happened Next!
  - Created a high-performing classifier (F1=98.19%), used RNN
- Stop Clickbait: Detecting and Preventing Clickbaits in Online News Media
  - Used RandomForest, SVM, Decision Tree
  - SVM was the best Classifier with F1=93%



Felix

Methodology

- Exploratory data analysis:
  - data consist of 32k headlines
  - 50% clickbait, 50% non-clickbait → balanced dataset
  - no missing values



Felix

Methodology

- Data Preparation
  - removing stopwords / special characters
  - removing punctuation
  - converting all headlines to lowercase

```
#Demonstrating the Text Preprocessing
print(CleanText('This is a headline that is totally not clickbait, unbelievable!!!'))
```

```
headline totally clickbait unbelievable
```

Felix

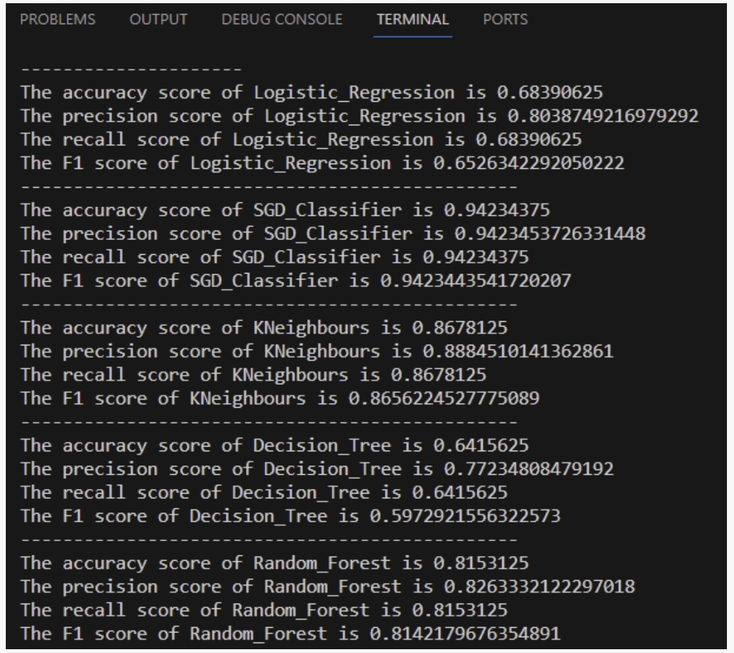
Methodology

- Tried 5 different classifiers we learned in our course
    - Logistic Regression
    - SGD Classifier (Stochastic Gradient Descent)
    - KNN
    - Descision Tree
    - Random Forest

Felix

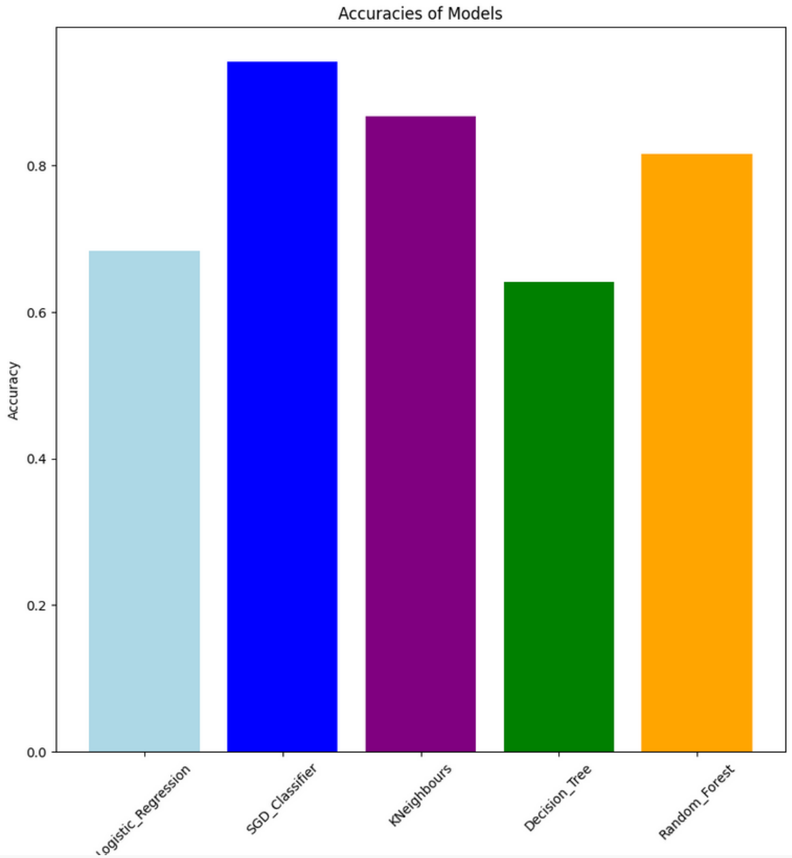
Experimental results

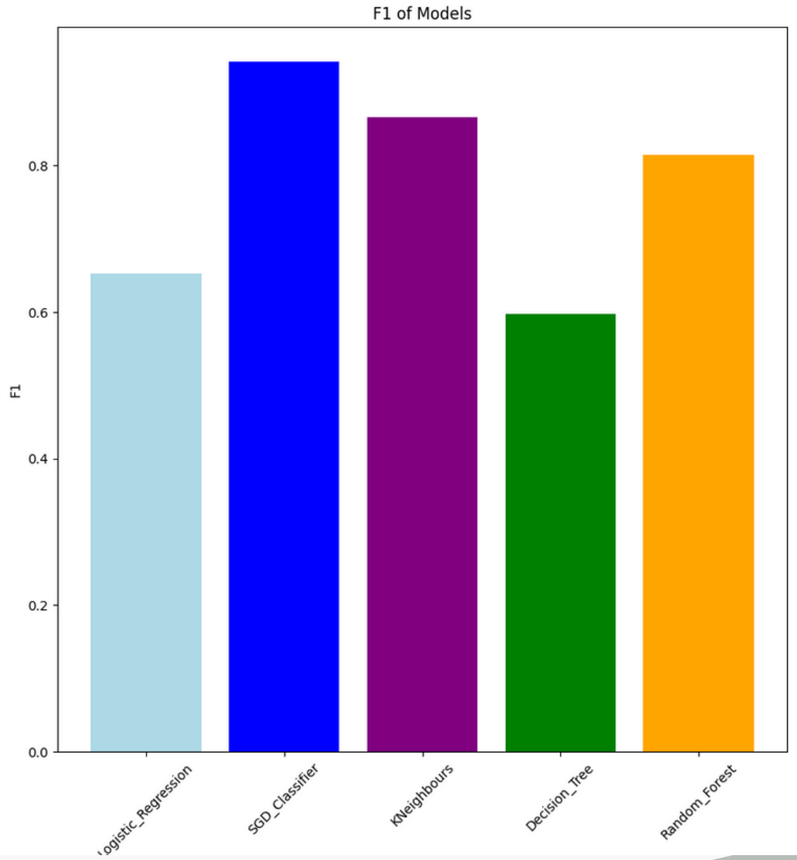
- Chosen Classifier
  - best performing overall classifier: SGD
  - accuracy: 94.23%
  - precision: 94.23%
  - recall: 94.23%
  - F1: 94.23%
  - ROC: 94%



Felix

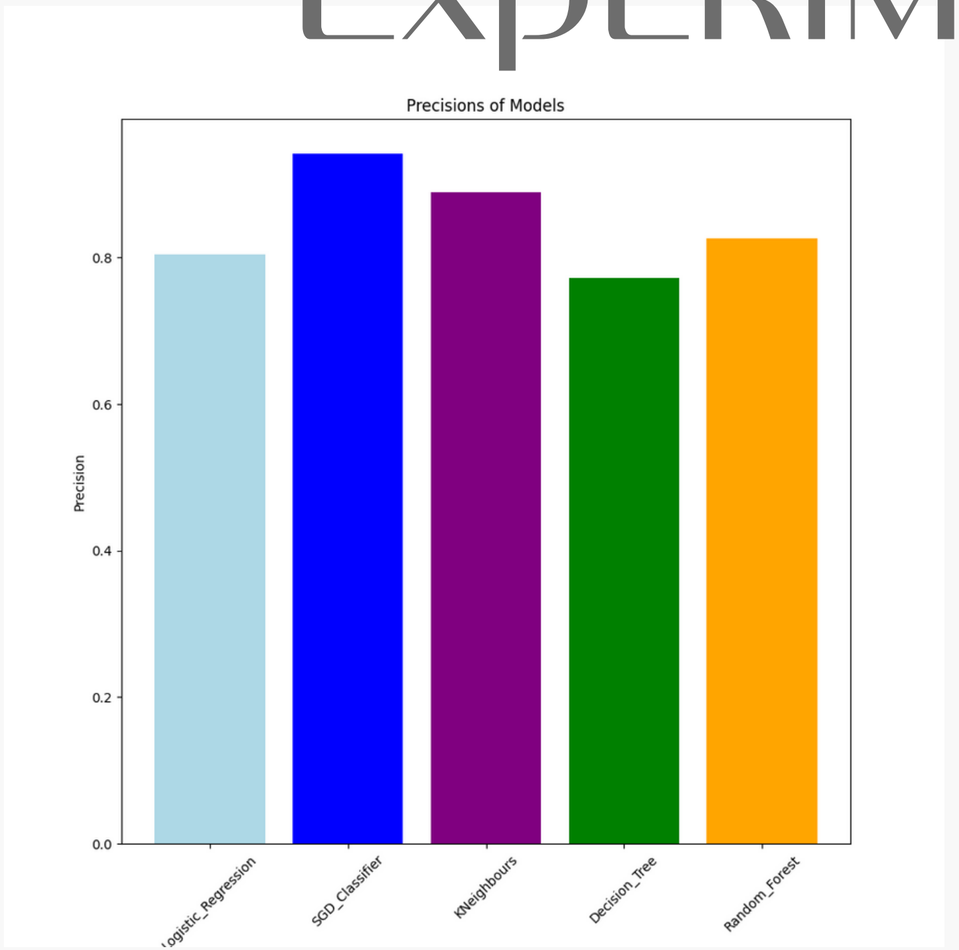
Experimental results

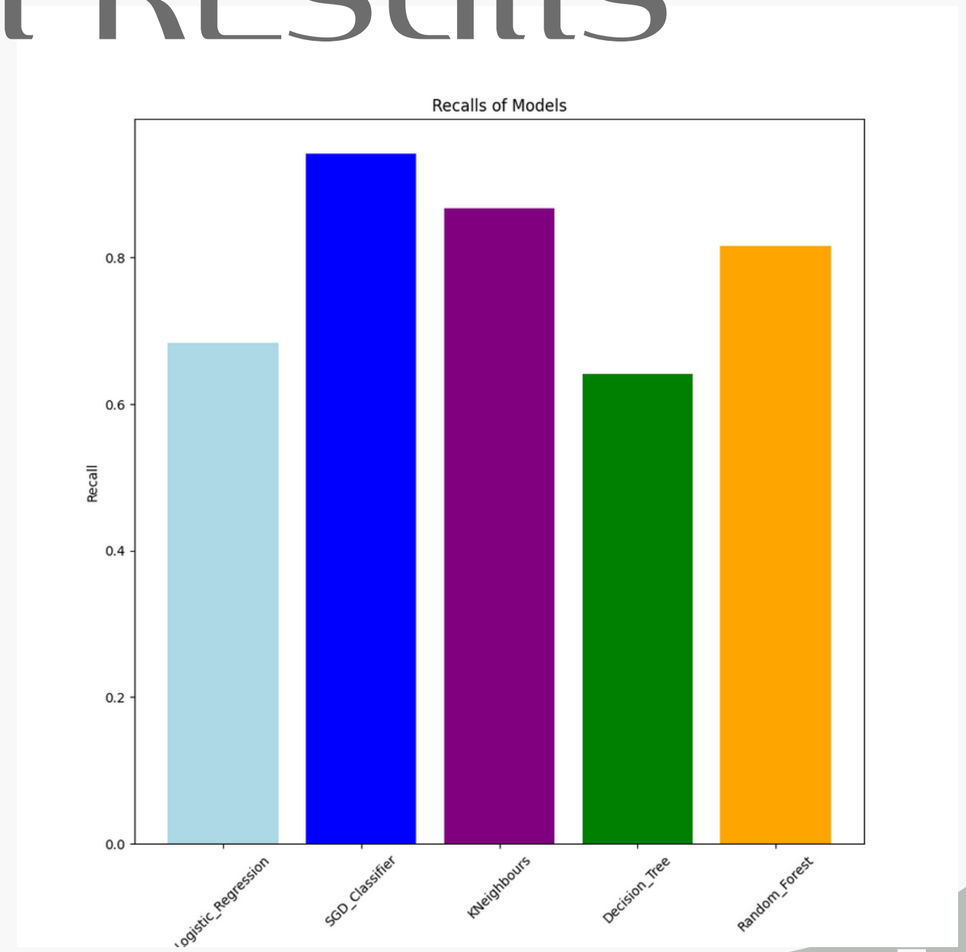




Felix

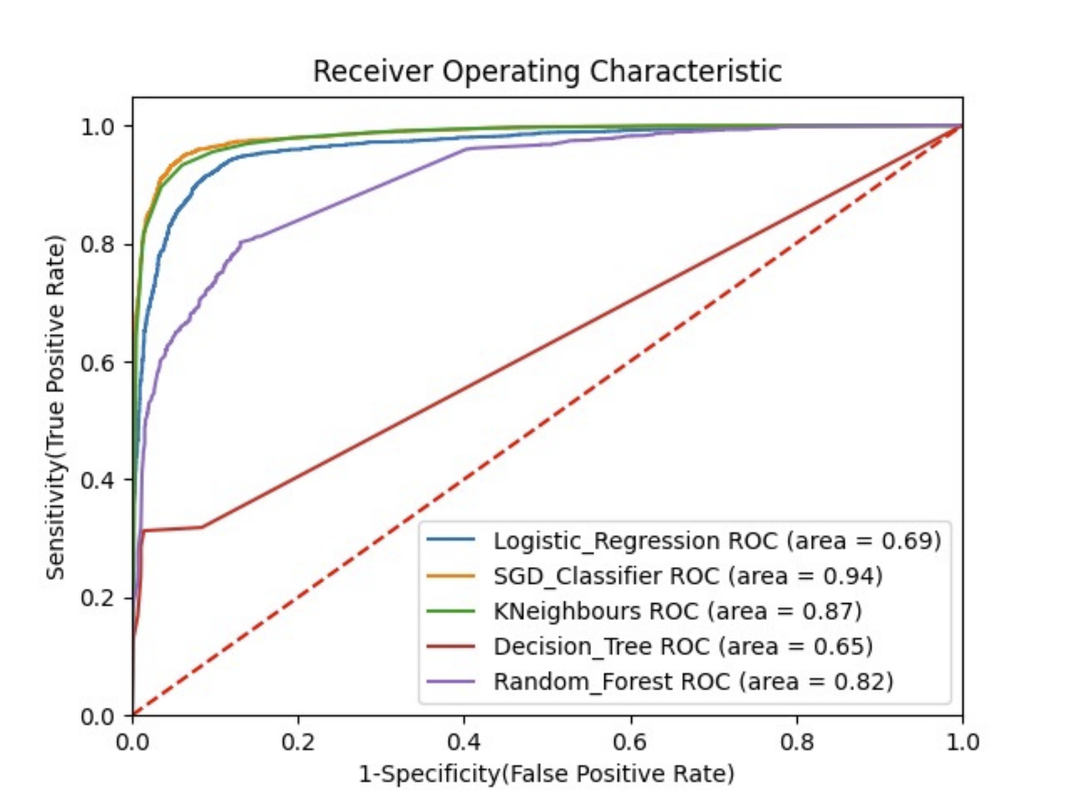
Experimental results



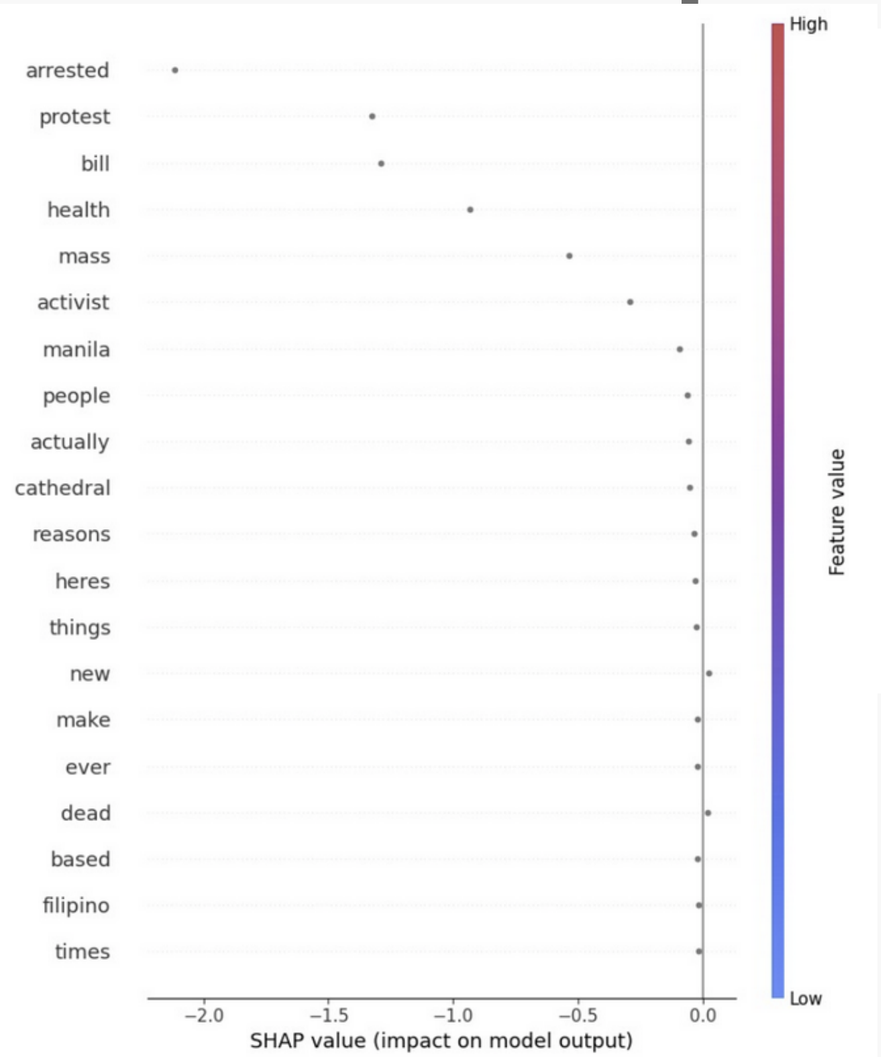


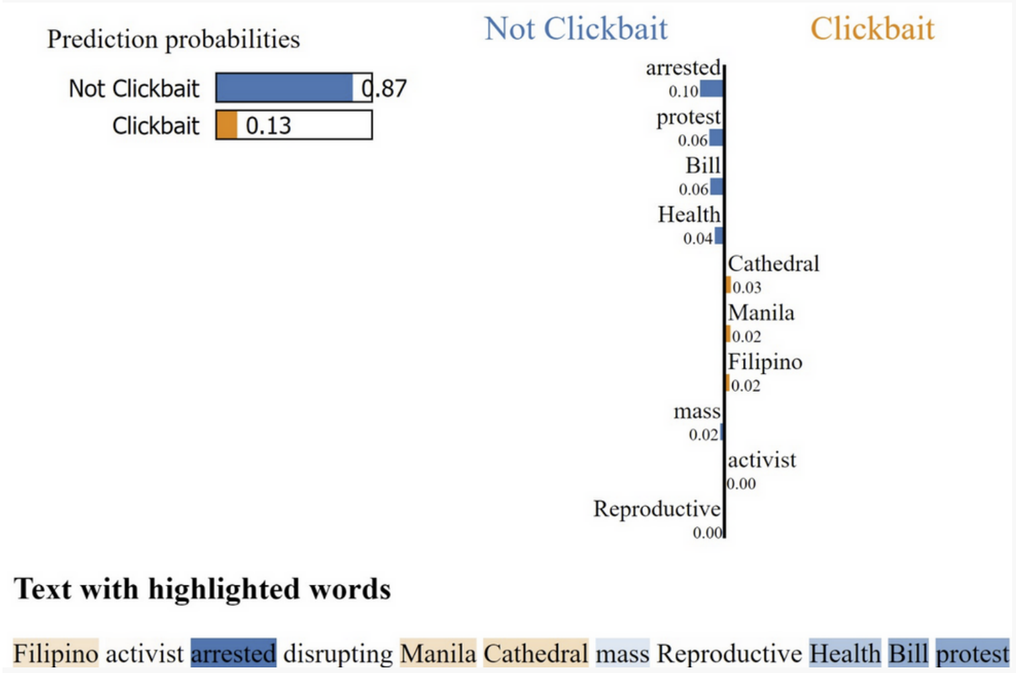
Felix

Experimental results



Explainability - Felix

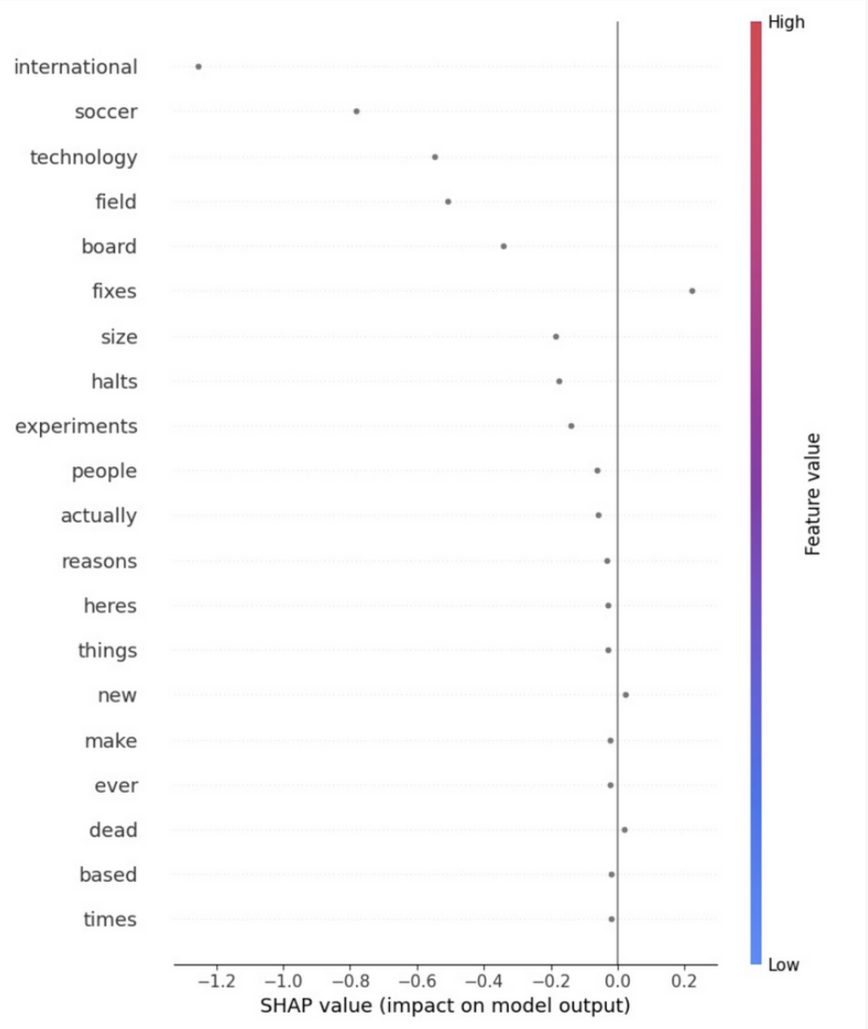


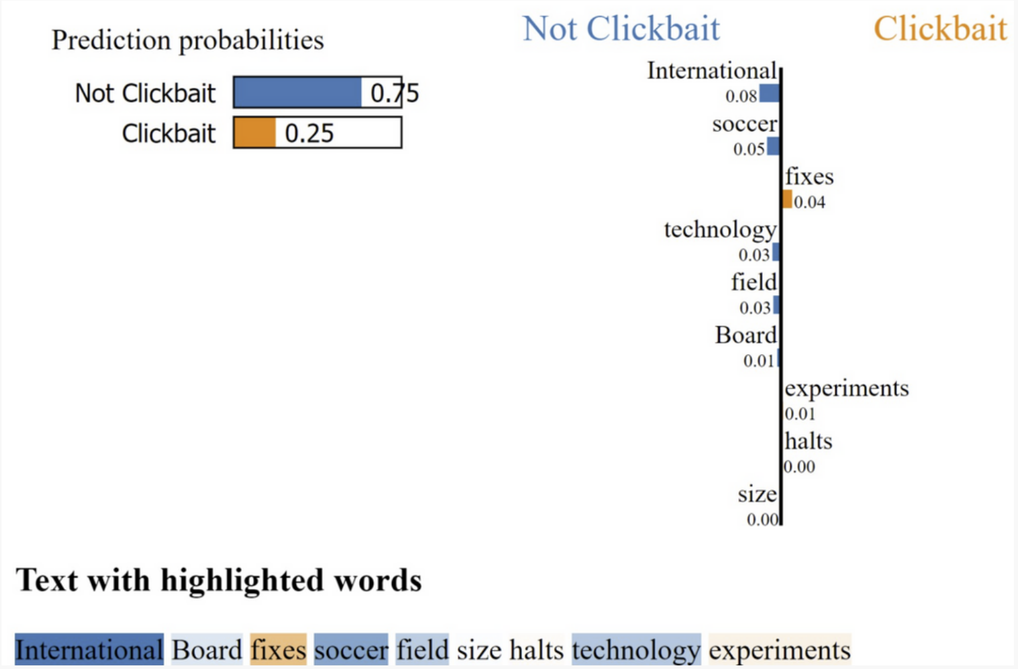


Filipino activist arrested
disrupting Manila Cathedral
mass Reproductive Health Bill protest

Felix

Explainability - Jonas

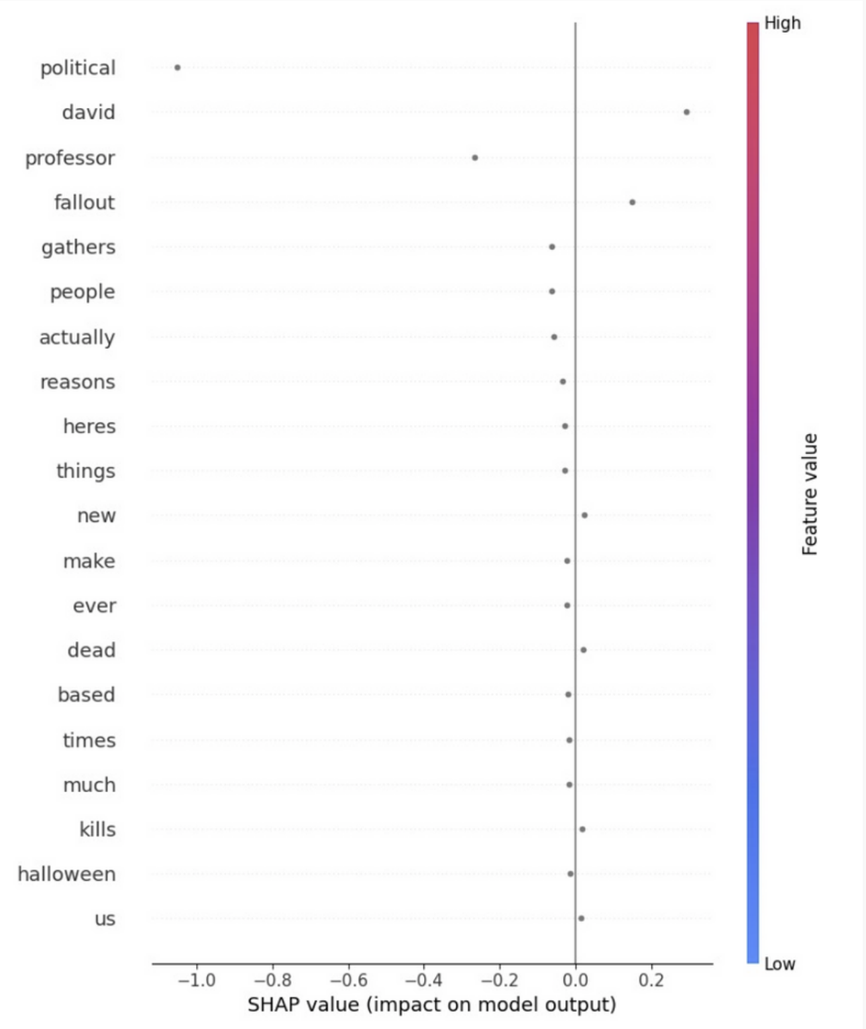


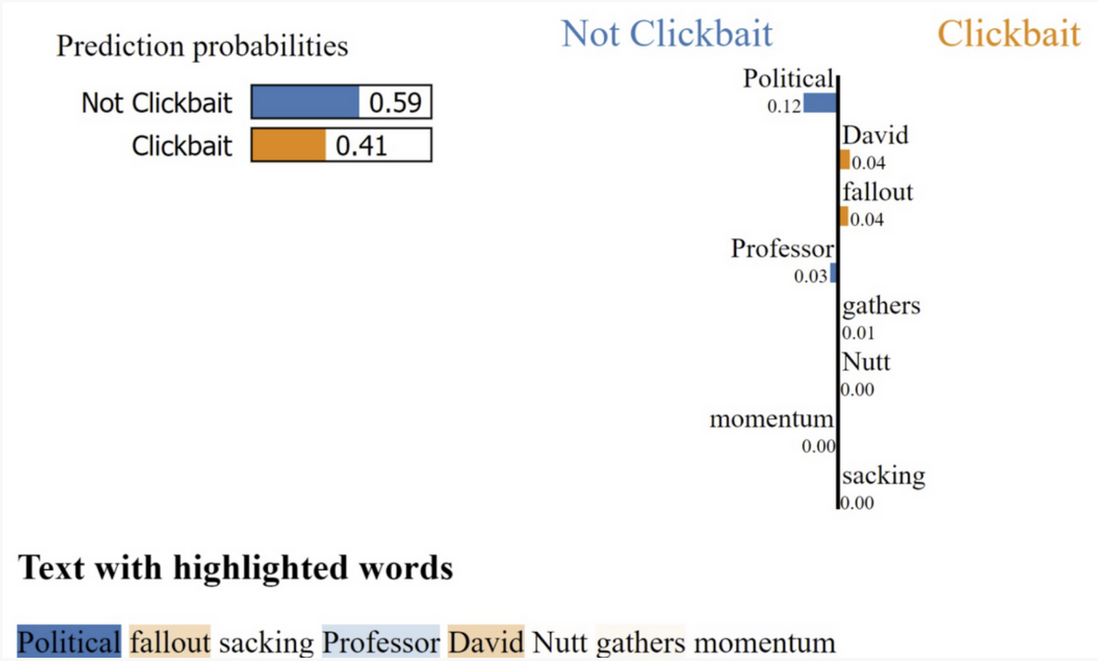


International Board fixes soccer field size halts technology experiments

Jonas

Explainability - David





Political fallout sacking Professor David Nutt gathers momentum

David

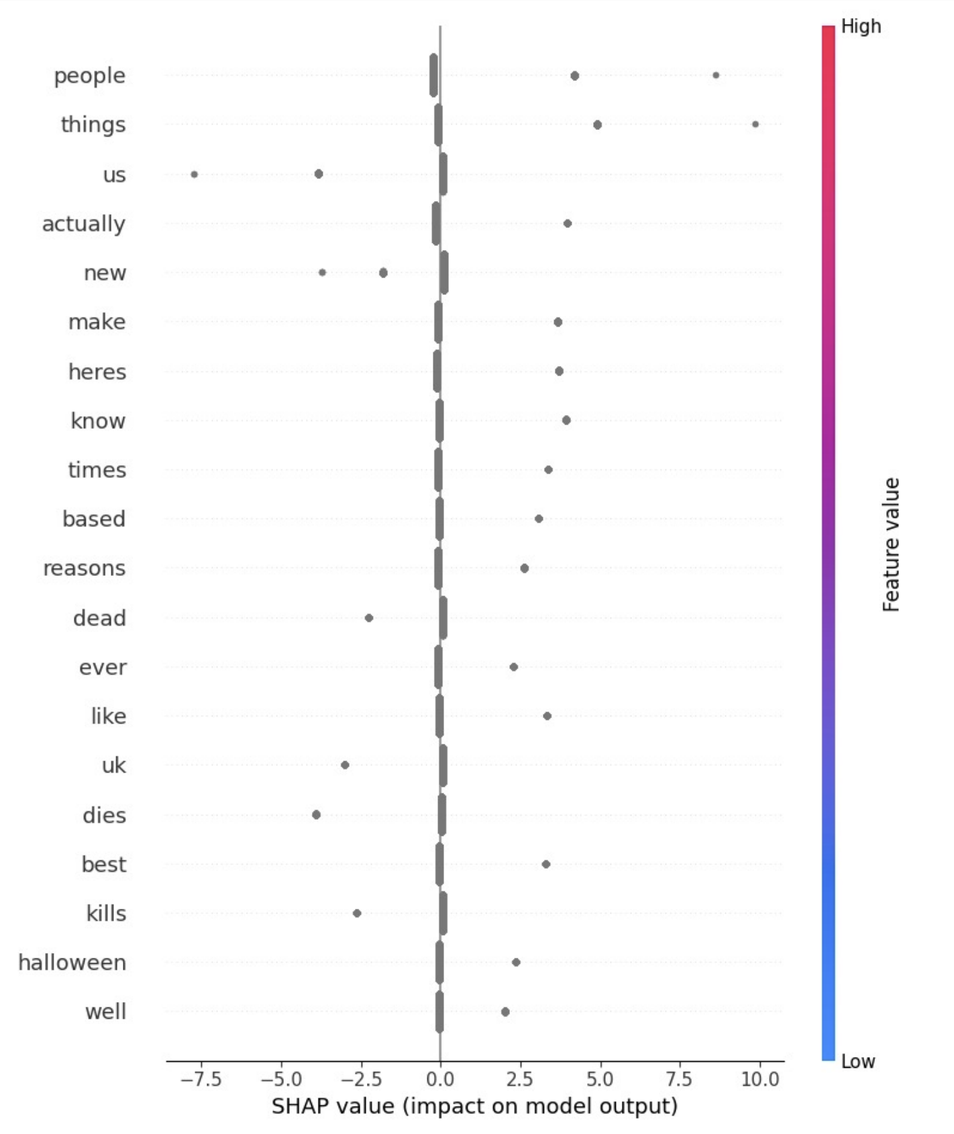
Explainability

Our group interpretation:

- Words that are often used in a sensationalized context are more likely to be clickbait
- action-oriented words are more likely to be clickbait (call to actions)
- “boring” and serious words are less likely to be clickbait
- we prefer LIME over SHAP

Jonas

Explainability of most used words



Jonas

Contribution

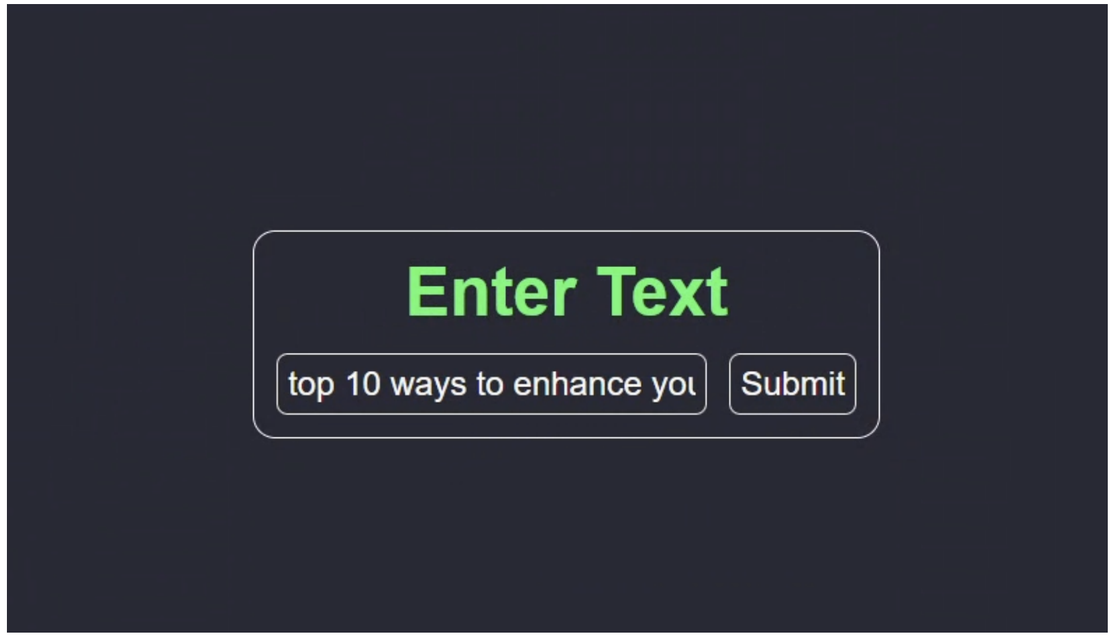
TOP 3 WAYS TO IMPROVE PERFORMANCE BY 0.26% (you won't believe number 3!!!)

- Adding numbers - David
- Not converting headlines to lowercase - Jonas
- Adding exclamation and question marks - Felix

David

Contribution

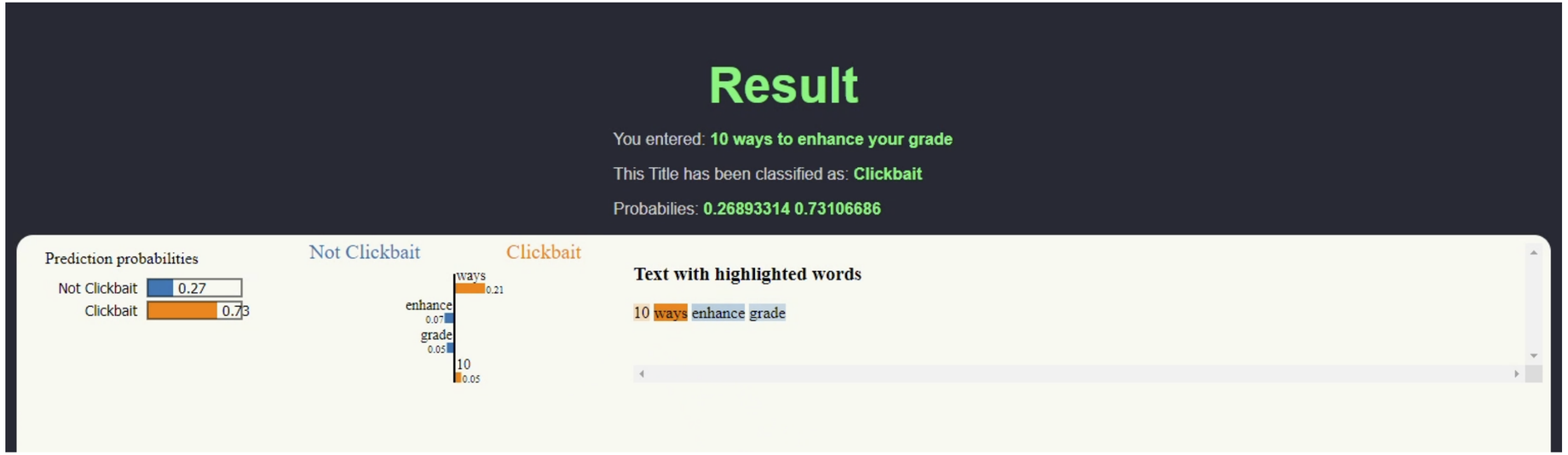
Web demo of a live Clickbait classifier



David

Contribution

Web demo of a live Clickbait classifier



David

Questions?

Q & (maybe) A

All

Thank you for your Attention